

(2) Other Listed or Approved Materials;

(c) *Fireblocking locations.* (1) Fireblocking must be installed in concealed spaces of stud walls, partitions, and furred spaces at the floor and ceiling levels. Concealed spaces must not communicate between floor levels. Concealed spaces must not communicate between a ceiling level and a concealed roof area, or an attic space.

(2) Fireblocking must be installed at the interconnection of a concealed vertical space and a concealed horizontal space that occurs:

(i) Between a concealed wall cavity and the ceiling joists above; and

(ii) At soffits, drop ceilings, cover ceilings, and similar locations.

(3) Fireblocking must be installed around the openings for pipes, vents, and other penetrations in walls, floors, and ceilings of furnace and water heater spaces. Pipes, vents, and other penetrations that cannot be moved freely within their opening are considered to be fireblocked. Materials used to fireblock heat producing vent penetrations must be noncombustible or limited combustible types.

[71 FR 72042, Nov. 30, 2005]

**§ 3280.207 Requirements for foam plastic thermal insulating materials.**

(a) *General.* Foam plastic thermal insulating materials shall not be used within the cavity of walls (not including doors) or ceilings or be exposed to the interior of the home unless:

(1) The foam plastic insulating material is protected by an interior finish of  $\frac{5}{16}$ -inch thick gypsum board or equivalent material for all cavities where the material is to be installed; or

(2) The foam plastic is used as a sheathing or siding backerboard, and it:

(i) Has a flame spread rating of 75 or less and a smoke-developed rating of 450 or less (not including outer covering of sheathing);

(ii) Does not exceed  $\frac{3}{8}$ -inch in thickness; and

(iii) Is separated from the interior of the manufactured home by a minimum of 2 inches of mineral fiber insulation or an equivalent thermal barrier; or

(3) The foam plastic insulating material has been previously accepted by

the Department for use in wall and/or ceiling cavities of manufactured homes, and it is installed in accordance with any restrictions imposed at the time of that acceptance; or

(4) The foam plastic insulating material has been tested as required for its location in wall and/or ceiling cavities in accordance with testing procedures described in the Illinois Institute of Technology Research Institute (IIT) Report, "Development of Mobile Home Fire Test Methods to Judge the Fire-Safe Performance of Foam Plastic Sheathing and Cavity Insulation, IITRI Fire and Safety Research Project J-6461, 1979" or other full-scale fire tests accepted by HUD, and it is installed in a manner consistent with the way the material was installed in the foam plastic test module. The materials must be capable of meeting the following acceptance criteria required for their location:

(i) *Wall assemblies.* The foam plastic system shall demonstrate equivalent or superior performance to the control module as determined by:

(A) Time to reach flashover (600 °C in the upper part of the room);

(B) Time to reach an oxygen (O<sub>2</sub>) level of 14% (rate of O<sub>2</sub> depletion), a carbon monoxide (CO) level of 1%, a carbon dioxide (CO<sub>2</sub>) level of 6%, and a smoke level of 0.26 optical density/meter measured at 5 feet high in the doorway; and

(C) Rate of change concentration for O<sub>2</sub>, CO, CO<sub>2</sub> and smoke measured 3 inches below the top of the doorway.

(ii) *Ceiling assemblies.* A minimum of three valid tests of the foam plastic system and one valid test of the control module shall be evaluated to determine if the foam plastic system demonstrates equivalent or superior performance to the control module. Individual factors to be evaluated include intensity of cavity fire (temperature-time) and post-test damage.

(iii) *Post-test damage assessment for wall and ceiling assemblies.* The overall performance of each total system shall also be evaluated in determining the acceptability of a particular foam plastic insulating material.

(b) All foam plastic thermal insulating materials used in manufactured

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housing shall have a flame spread rating of 75 or less (not including outer covering or sheathing) and a maximum smoke-developed rating of 450.

[49 FR 32008, Aug. 9, 1984, as amended at 70 FR 72043, Nov. 30, 2005]

### § 3280.208 Smoke alarm requirements.

(a) *Labeling.* Each smoke alarm required under paragraph (b) of this section must conform with the requirements of UL 217, Single and Multiple Station Smoke Alarms, dated January 4, 1999 (incorporated by reference, see § 3280.4), or UL 268, Smoke Detectors for Fire Protective Signaling Systems, dated January 4, 1999 (incorporated by reference, see § 3280.4), and must bear a label to evidence conformance.

(b) *Required smoke alarm locations.* (1) At least one smoke alarm must be installed in each of the following locations:

(i) To protect both the living area and kitchen space. Manufacturers are encouraged to locate the alarm in the living area remote from the kitchen and cooking appliances. A smoke alarm located within 20 feet horizontally of a cooking appliance must incorporate a temporary silencing feature or be of a photoelectric type.

(ii) In each room designed for sleeping.

(iii) On the ceiling of the upper level near the top or above each stairway, other than a basement stairway, in any multistory home completed in accordance with this part or part 3282 of this chapter. The alarm must be located so that smoke rising in the stairway cannot be prevented from reaching the alarm by an intervening door or obstruction.

(2) For each home designed to be placed over a basement, the manufacturer must provide a smoke alarm for the basement and must install at the factory an electrical junction box for the installation of this smoke alarm and for its interconnection to other smoke alarms required by this section. The instructions for installers and information for homeowners required in paragraph (f) of this section must clearly indicate that a smoke alarm should be installed and is to be located on the basement ceiling near the stairway.

(3) A smoke alarm required under this section must not be placed in a location that impairs its effectiveness or in any of the following locations:

(i) Within 3 feet horizontally from any discharge grille when a home is equipped or designed for future installation of a roof-mounted evaporative cooler or other equipment discharging conditioned air through a ceiling grille into the living space; and

(ii) In any location or environment that is prohibited by the terms of its listing, except as permitted by this section.

(c) *Mounting requirements.* (1) Except in rooms with peaked sloping or shed sloping ceilings with a slope of more than 1.5/12 or as permitted pursuant to paragraph (e) of this section, smoke alarms must be mounted either:

(i) On the ceiling at least 4 inches from each wall; or

(ii) On a wall with the top of the alarm not less than 4 inches below the ceiling, and not farther from the ceiling than 12 inches or the distance from the ceiling specified in the smoke alarm manufacturer's listing and instructions, whichever is less.

(2) Except as permitted pursuant to paragraph (e) of this section, in rooms with peaked sloping ceilings with a slope of more than 1.5/12, smoke alarms must be mounted on the ceiling within 3 feet, measured horizontally, from the peak of the ceiling; at least 4 inches, measured vertically, below the peak of the ceiling; and at least 4 inches from any projecting structural element.

(3) Except as permitted pursuant to paragraph (e) of this section, in rooms with shed sloping ceilings with a slope of more than 1.5/12, smoke alarms must be mounted on the ceiling within 3 feet, measured horizontally, of the high side of the ceiling, and not closer than 4 inches from any adjoining wall surface and from any projecting structural element.

(d) *Connection to power source.* (1) Each smoke alarm must be powered from:

(i) The electrical system of the home as the primary power source and a battery as a secondary power source; or

(ii) A battery rated for a 10-year life, provided the smoke alarm is listed for use with a 10-year battery.